Summary of Testimony
Assistant Secretary Alvin L. Alm
Department of Energy
May 7, 1997

I share the Subcommittee's frustration regarding the difficulty of deploying new environmental technologies. The record of actual deployment has been disappointing, despite rather substantial efforts to develop, nurture and commercialize new technologies.

A number of barriers to implementation of new technologies have been identified and include:

- A conservative regulatory environment limits the demand for innovative technologies.
- The Department's Management and Operating contracting structure discourages use of innovations.
- Lack of real budget pressure in the past has not required less costly solutions.

The Environmental Management program has taken steps to remove these barriers and provide incentives to encourage use of new technologies:

- The ten year planning process will establish efficiency goals and require field offices to identify uses of innovative technologies to meet those goals. A review of the preliminary field-submitted plans by the Army Corps of Engineers supports a projection of $20 billion dollars in possible savings from innovative technology deployment.
- The Department is initiating procurement strategy changes which tie contractor award fees to successful acceleration and less costly performance of projects.
- In order to address the regulatory barriers, we are fostering a number of processes to bring together regulators, users and other stakeholders in the decision making process.
- We have requested $50 million in the FY 1998 budget to fund a technology deployment initiative to provide incentives for widespread application of technologies meeting multi-site performance specifications.

Although total deployment of technologies has been disappointing, progress is being made.

- The number of innovative technologies deployed in the field is increasing at a rapid rate with deployments doubling from 50 to 100 total in the last two years.
- Technologies have been deployed to address problems for which there were previously no solutions and to improve on baseline technology performance.

In responding to the Committee's requests for data regarding technology development costs and deployments, it became apparent that our existing system for collecting and tracking this data are not adequate to respond quickly. We have made improvements and will commit to future refinements to those progress reporting systems.

I pledge to work with the Committee to develop a dialogue, which forges solutions leading to a stronger Environmental Management program.

Assistant Secretary Alvin Alm
for the Office of Environmental Management
Department of Energy
before the
House Commerce Committee
Subcommittee on Oversight and Investigations

May 7, 1997

Mr. Chairman and distinguished Subcommittee members:

Your committee is focusing on a critical issue that deserves public attention -- the development and effective deployment of innovative technologies to support the cleanup of the Department of Energy's nuclear weapons complex.

Over the years, I have been personally involved with a number of groups focusing on the issue of deploying and commercializing environmental technologies. For example, I participated in the implementation follow-up to the Clinton Administration's National Environmental Technology Strategy, which Vice President Gore released in April of 1995. I was a board member of the Environmental Technology Export Council, and other non-profit groups devoted to bringing new environmental innovative technology into actual use. I temporarily headed the California Environmental Technology Center. I have even been involved with venture capital applications of environmental technology. I know personally how difficult and frustrating it has been to deploy new environmental technologies.

The record of actual deployment has been disappointing, despite rather substantial efforts to

develop, nurture and commercialize new technologies. Why has this been true? Volumes have been written on barriers, so I will only mention a few.

- There has been no compelling demand to employ technologies that are cheaper and more effective, but without a proven "track record". Because of potential liabilities and a conservative regulatory environment, there is little pressure to take even the most modest technological risks.

- For DOE, previous Management and Operating contractors had no monetary incentive to seek out innovative technologies. The basic contracting system of cost-plus award fee contracts worked against bringing on new technologies.

- Until recent efforts to reduce Federal spending forced new attention on the need to "do more with less", there was insufficient motivation on the part of the Department itself to cut costs, hence creating little incentive to take the risk of a more promising, but potentially more difficult technology.

To overcomes these barriers, the Department has undertaken a number of initiatives that should lead to faster deployment of innovative technologies. I will describe these activities in this testimony.

Before doing so, let me affirm our interest in working with your Committee on your ongoing

review of this program. As part of this effort, the Commerce Committee has asked the Office of Environmental Management to provide an extensive amount of data regarding our past performance, current efforts in developing new technologies, and our record in deploying new technologies. In attempting to respond to these requests, it became apparent that our existing system for collecting and tracking this data was not adequate to respond to the Committee's request. Much of the data requested by the Committee was collected from our field offices, requiring a time-consuming process of contacting numerous technical staffers and reviewing large volumes of data. We expect to fulfill the outstanding information requests by June 1.

In short, it has taken longer to respond completely to the Committee's request than it should have, and the Committee's requests have been a major impetus for improving our collection of technology development and deployment data. We believe that we have made a great deal of progress over the past five months in improving our data quality and systems, and we are committed to meeting the requests for information from this Committee and others in the Congress. In the long run, we believe that the spotlight you are focusing on this important issue will help promote the use of innovative technologies, and I pledge to you today to work cooperatively to make this program more effective.

I want to focus my comments today on the fundamental factors that will drive our program. I also want to highlight our efforts to create demand for cheaper, faster and better technologies, remove procurement barriers and create positive incentives for deploying innovative technology.

Let me describe some of the steps we are taking:

Ten Year Plan. The ten year planning process is a comprehensive effort to speed-up the completion of work at all sites and to cleanup as many sites as possible by 2006. A discussion draft that outlines this planning process will be released shortly. We expect the plan itself -- which will be released following extensive public review and comment -- will create a new environment for using new technology. It will create demand for innovative technologies through the following mechanisms:

First, by establishing efficiency goals for each year. Contractors will need to achieve these objectives or they will lose award fees. Hence, they will have a strong incentive to look to innovative technology as a way to achieve these efficiency goals. In essence, we will be creating positive demand for use of new technology.

Second, we requested and received from each field office a plan for how they intend to use innovative technologies to expedite cleanup in the ten year planning process. In this way, using new technologies will no longer be a diversion from the normal way of doing business, but will become an integral part of the cleanup mission. An initial review of the preliminary plans submitted by field offices indicated that the use of innovative technologies will yield substantial savings. The Army Corps of Engineers has reviewed the estimates from our field offices and based on a sample of projected savings, agrees that the potential exists for savings of over $20 billion in life cycle costs by using innovative technologies instead of traditional technologies.

I am providing to the committee Exhibit 1, which shows the estimated potential savings based on three analyses: the independent Corps review, a review by our headquarters staff, and the plans submitted by our field offices. As you can see in all three cases, there are potentially billions of dollars in savings that may result by developing and deploying innovative technologies.

Procurement Strategy. A review conducted by the Environmental Management Advisory Board indicated that DOE needed to support more technology procurement and do more "outside" procurement, rather than depending on Management and Operating contractors to accomplish work. Currently, DOE is moving toward an "integrator contracts" approach, in which the integrating contractor would subcontract all of the DOE cleanup and waste management work. The integrator's fee will be heavily dependent on its ability to achieve efficiency goals. This type of contracting should create a strong incentive to use innovative technology to reduce costs.

I have placed great emphasis on other innovative contracting strategies, which can be used coincident with the integrator approach, including privatization. Although this type of strategy is most conducive to deployment of technologies which are beyond the pioneering stages, it encourages contractors and sites to focus on the end results of cleanup. Focusing in this way on the performance of technologies creates measures of effectiveness against which alternate technologies can be judged, and encourages process improvements that can lead to lower costs.

Removing Barriers. In order to address the regulatory barriers to obtaining permits for

innovative technologies, we have put into place a number of processes that bring together regulators, users, and other stakeholders in the decision making process. Excellent working relationships have been established through the recently completed five-year Western Governors' Association Memorandum of Understanding, including DOIT (the Development of Onsite Innovative Technologies) and the Interstate Technology and Regulatory Cooperation subgroup (ITRC), for which DOE received a Government Performance and Results Act HAMMER Award last year.

This important work was recently recognized in a letter to the Secretary from James Strock of the California Environmental Protection Agency. He mentioned these collaborative efforts with state regulators and stated that they were leading to "more uniform and streamlined regulatory processes so redundant, costly testing and demonstration of new technology are reduced or even eliminated."

We have also worked for several years in partnership with the Departments of Commerce and Defense and with the Environmental Protection Agency on the Rapid Commercialization Initiative (RCI) to mitigate the economic and regulatory barriers that impede market entry of innovative technologies. In 1996, ten RCI projects were selected in response to a solicitation for proposals from private sector technology holders. RCI is focusing on eliminating the impediments to implementation and on facilitating the environmental permitting for these ten technologies.

In cooperation with the Department, the Southern States Energy Board (SSEB) is now also moving to quickly expedite States' environmental technology permitting processes. The SSEB is a unique Federally chartered organization with a long-term relationship with members states' regulators, legislators, governors, and resident industries. Sixteen southern states, Puerto Rico and the U.S. Virgin Islands comprise its membership. The SSEB is working with EM and the ITRC on an initiative called the Permitting Leadership in the United States (PLUS) program to expedite deployment of innovative environmental technologies.

Deployment Initiative. Another way to remove barriers is to provide special funding to encourage contractors, entrepreneurs and others to take some of the risks and incur some of the first-time costs of deployment of new technology.

Although progress is being made, more needs to be done to optimize widespread use of new technologies. We have requested $50 million in the FY 1998 budget to fund a technology deployment initiative to provide incentives for widespread application of new risk-reducing and cost-saving technology. The initiative will assist in funding the first application of technologies meeting multi-site performance specifications. By fostering proposals which solve problems common to a number of sites across the complex, we may well jump-start the technology deployment effort in a major way. I am hopeful that the quality of the proposals received will lead to successful deployments and justify this experiment by producing impressive results.

This technology deployment strategy will allow problems to be eliminated ahead of schedule and

provide user-validated performance data and regulatory acceptance for the technology. Cost savings may be realized through this initiative by accelerating the cleanup schedule, applying more efficient technologies, and reducing the programmatic risk of using alternative technologies at other sites through the DOE complex. I have committed to our field office managers that savings achieved through acceleration of cleanup due to deployment of technologies will not result in commensurate reductions in the level of funding for that office, thereby providing a continuing incentive. Savings will then be used to accelerate the balance of the work at those sites.

Program Performance. I have focused on technology development in the context of environmental cleanup. As I indicated earlier, I am not satisfied with the progress that has been made to date. I do believe, however, that there have been a substantial number of successes. Allow me to recount some of the most important successes:

First, the number of innovative technologies deployed in the field is increasing at a rapid rate. As you know, developing innovative technologies serve no purpose unless the technologies are used in actual cleanups. The normal investment period before seeing a payoff in actual field use is typically six to seven years. I am happy to report that years of laboring in the laboratory are beginning to pay off. As you can see from Exhibit 2, the number of innovative technologies deployed in the field has nearly doubled in the past two years from fewer than 50, to more than 100 innovative technologies that have been used at cleanup sites. This increase in deployments is partially the result of a shift in technology funding. We are now investing more in

technologies that have matured though several stages of development to the point where they are close to field implementation (see Exhibit 3).

Second, certain technologies we have developed have allowed workers to perform cleanup task that previously could not be attempted without significant risk to the workers themselves. For example, we have developed a remotely operated robotic arm, the Light Duty Utility Arm, that can be fitted with various tools to perform tasks in highly-contaminated areas such as inside of a high level radioactive waste tank. As you may know, these tanks are as large as the Capitol dome and contain highly toxic waste. At the Hanford site there 177 of these tanks, some which were built in the 1940s and have been leaking for years. The innovation enables safe access to these tanks, which could previously not be characterized, let alone cleaned. Potential applications are many and include over 300 radioactive waste storage tanks across the complex, which presently have potential to pose occupational and public health risks.

Third, I can give you specific examples of technologies we have helped develop and deploy in the field. The use of these technologies are improving cleanup in a variety of ways through faster cleanup, improved effectiveness, reduced costs and reduced worker risks.

- Expedited site characterization includes a number of innovative technologies, and is part of a broader effort to minimize studies and focus on actual cleanup. Using these technologies, we have significantly reduced the time it takes to characterize a site so that the right cleanup method can be determined and implemented. A specific example of this

new array of innovations is the "cone penetrometer", which hydraulically pushes environmental sensors and groundwater and soils sampling devices into the soil to perform various tasks.

- The Large Scale Demonstration Project at a nuclear reactor in Illinois (CP-5) will demonstrate approximately 30 "field test ready" innovative facility decommissioning technologies. The CP-5 reactor contains many of the essential features of other DOE nuclear facilities, making it an excellent site on which to conduct these demonstrations. Private industry is also interested in the success of this large-scale demonstration, which is expected to be complete this year.

These are the practical success stories of this program. We know we can and must do better, but the benefits of these and dozens of other innovative technologies are undeniable.

Where Do We Go In The Future?

Based on the Corps of Engineers review, there appears to be additional potential for application of new technology to reduce costs and to improve our performance. Our task now is to give real management attention to overcoming the inertia keeping us from overcoming barriers to technology deployment. We plan to do this by continuing our efforts in several critical areas.

First, we must create a positive demand for applying innovative technology. The efficiency

targets that would be associated with the ten year planning process represent a powerful tool for accomplishing this objective.

Second, we need to shape our procurement strategies to provide opportunity for innovative technologies to compete. The integrator procurement approach we are using should create new incentives for cost-savings and break down the "not-invented-here" syndrome, encouraging more cost-effective approaches to solving EM problems.

Third, we must continue our efforts to break down regulatory barriers, working with state and Federal regulatory agencies and other stakeholders and through cooperative arrangements, such as those with the Western and Southern governors.

Fourth, we must be willing to experiment with new ways to encourage use of innovative technology. The Technology Deployment Initiative could create a strong impetus toward using new technology to solve environmental problems.

Fifth, we must continually determine if these improvements are having the desired effect of deploying new technologies that accelerate cleanup and lower costs. The EM program has been criticized for not formally tracking deployments, and I acknowledge that shortcoming. I will institute tracking mechanisms to identify innovative technology use, costs incurred and technical scope addressed. My staff will begin working on a strategy to define these performance metrics and methods to integrate them with our existing progress tracking measures.

When I took over the position as Assistant Secretary for Environmental Management, I vowed to make every effort to make this program more efficient. Deploying more cost-effective technology represents one way to achieve this goal. I pledge to the Chairman and to members of the Committee that I will work to assure that we reap the bounty of investments in technology, and that I will report progress to the Committee.

This oversight hearing has focused on important issues for my program and the international effort to clean up industrial waste sites. I hope that we can work with the Committee to develop a dialogue, which forges solutions leading to a stronger Environmental Management program.

Investing in Technologies will Save $ Billions

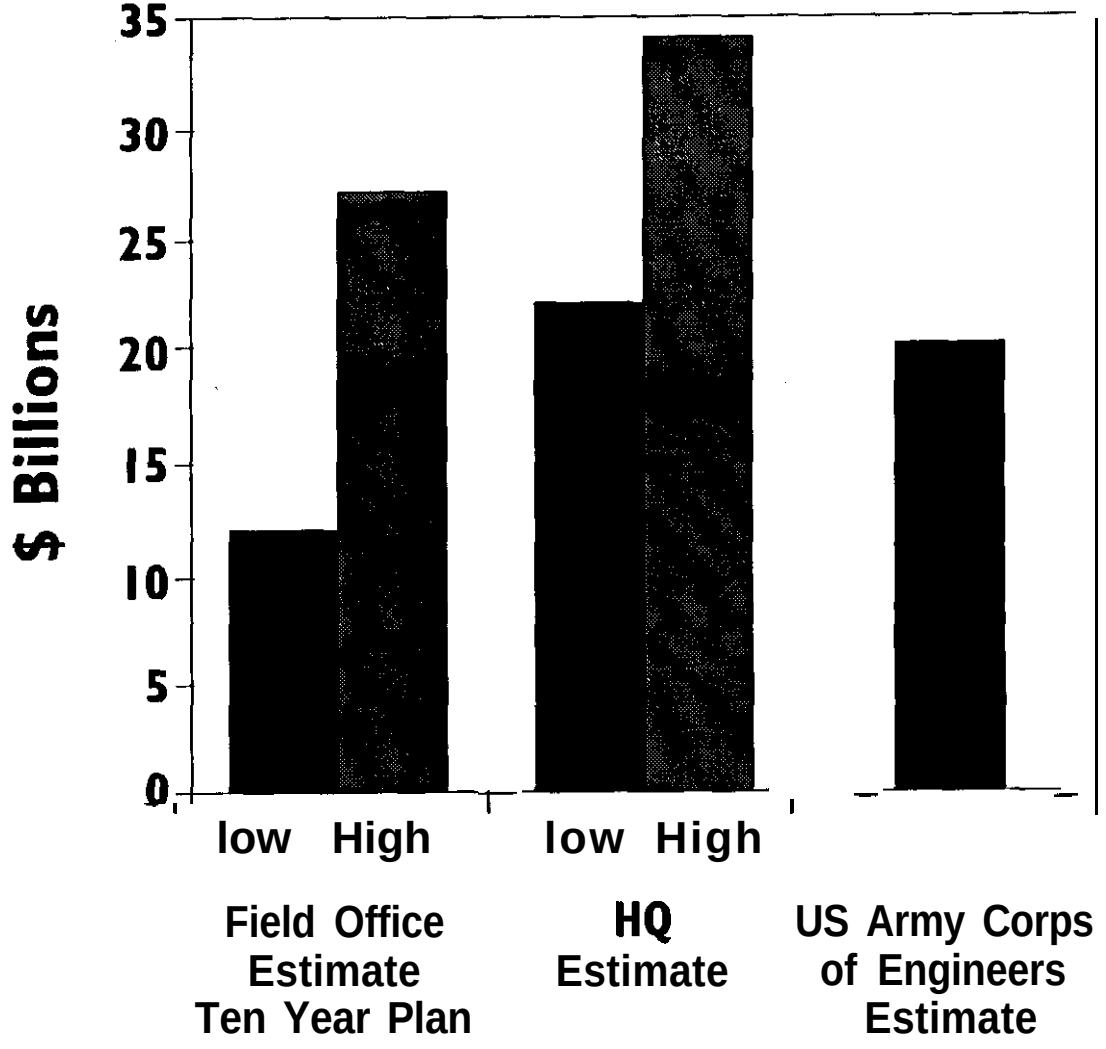


Exhibit 1

New Technologies Deployed

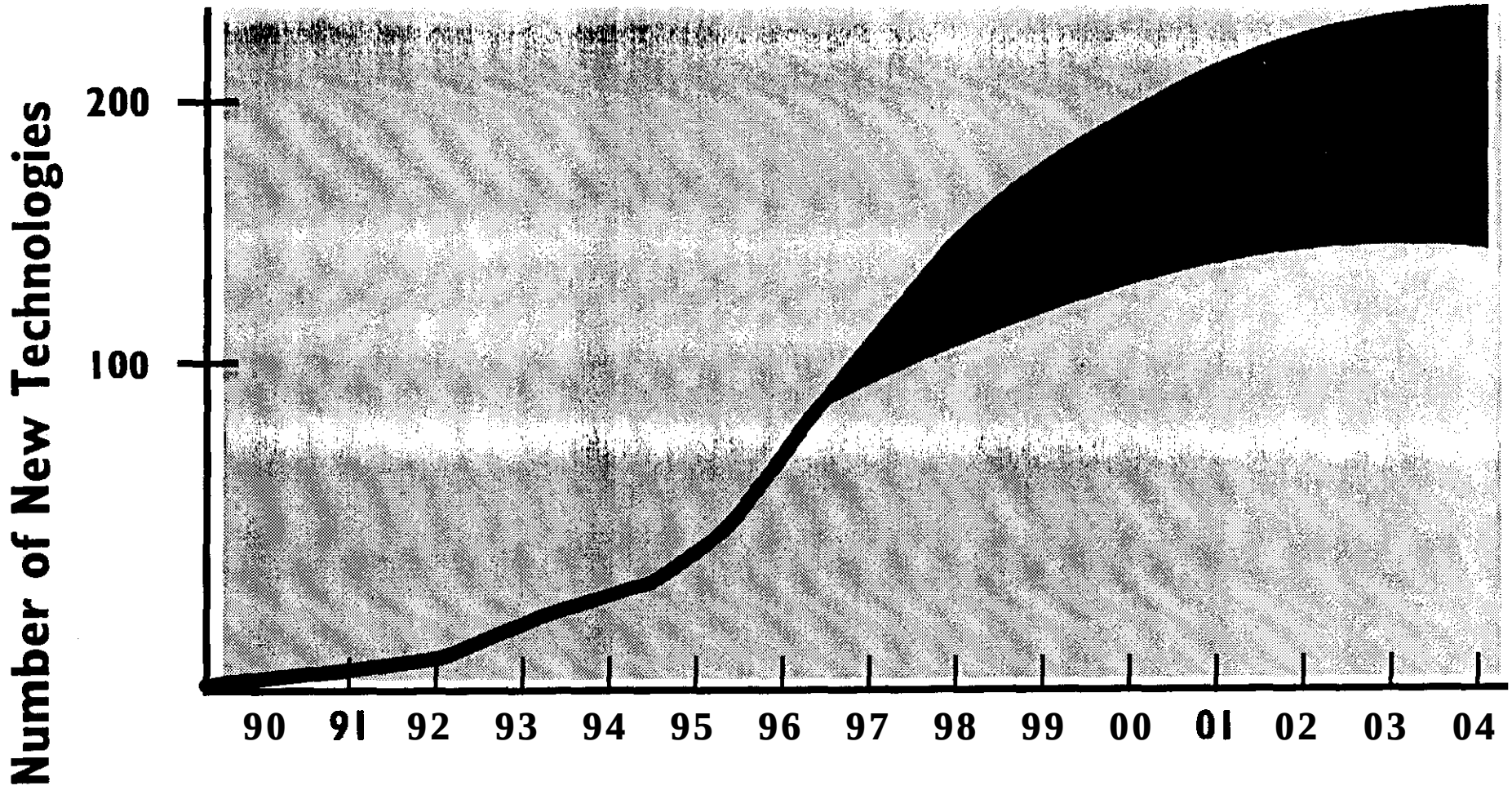
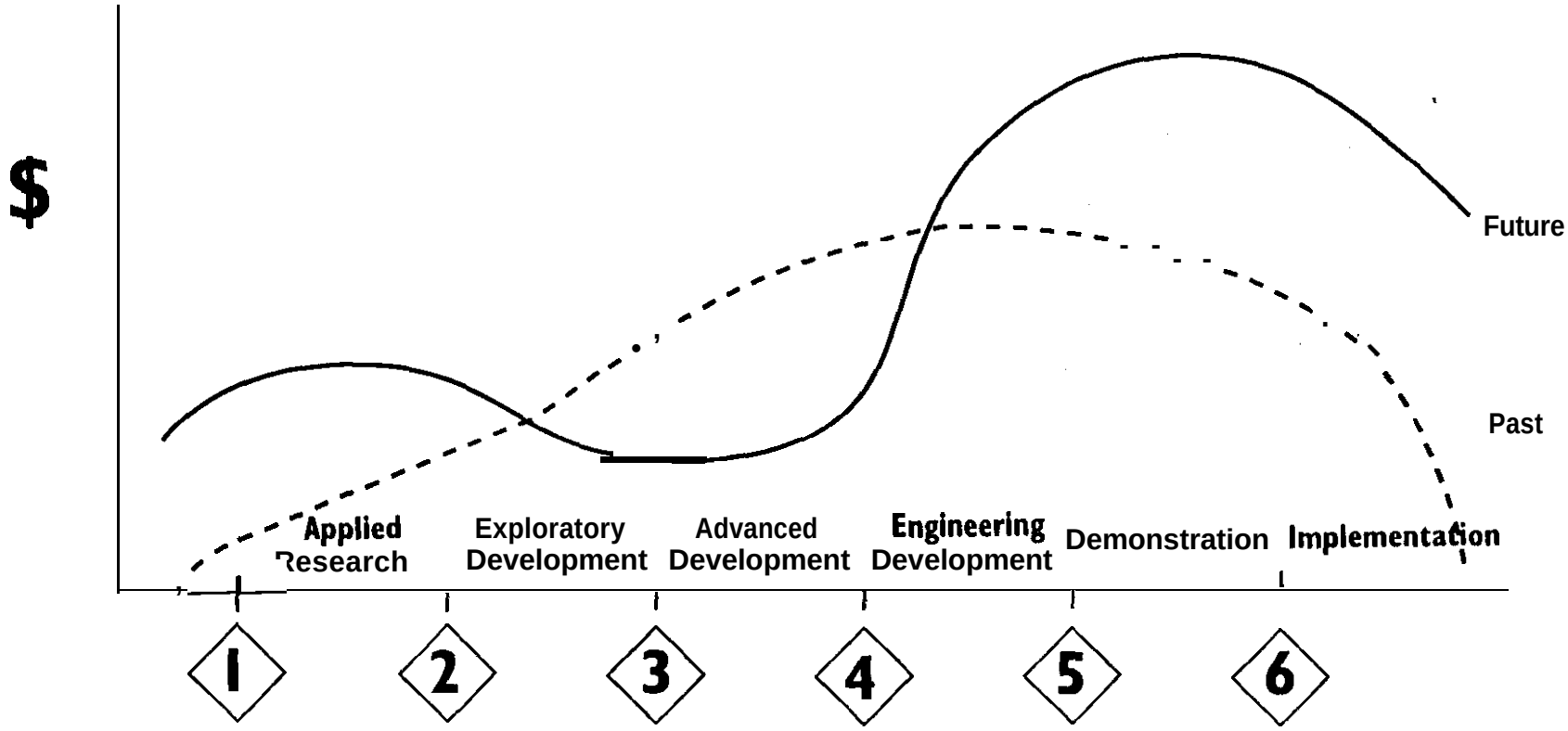


Exhibit 2

Shifting Investments to Science and Deployment



Technology Maturity Chart

Exhibit 3

Department of Energy

Washington, DC 20585

ALVIN L. ALM

Prior to assuming the position of Assistant Secretary for Environmental Management at the Department of Energy in May 1996, Mr. Alm was a Senior Vice President and Director responsible for the environmental business area within Science Applications International Corporation (SAIC).

Mr. Alm began his professional career in 1961 as a federal management intern with the Atomic Energy Commission.' He spent seven years (1963-1970) at the Bureau of the Budget (now OMB) and became a senior budget examiner. In 1970, Mr. Alm became the first staff director of the newly created Council on Environmental Quality. In 1973, Mr. Alm became the EPA Assistant Administrator for Planning and Management, responsible for strategic planning, budgeting, policy and internal management. In 1977, after spending nine months in the Executive Office of the President, Mr. Alm became Assistant Secretary of Energy for Policy and Evaluation. From 1980 to 1983, Mr. Alm was at the Harvard University's John F. Kennedy School of Government where he managed a research program. In 1983, Mr. Alm was tapped by William D. Ruckelshaus to be EPA's Deputy Administrator.

From 1985 to early 1987, Mr. Alm was the Chairman of the Board and Chief Executive Officer of Thermal Analytical Corporation, an environmental testing company. Mr. Alm stayed on the Board for Thermo Analytical and later for Thermo Environmental until 1989. From 1987 to 1989, Mr. Alm was Chief Executive Officer of Alliance Technologies Corporation and Senior Vice-President of the parent company, TRC Companies, Inc. He became a Senior Vice President and SAIC Board member in June 1989.

Mr. Alm received his Bachelor of Arts Degree from the University of Denver in 1960. He received a Master's Degree in Public Administration from the Maxwell Graduate School at Syracuse University in 1961.

Mr. Alm was involved with a number of outside activities. He was Co-Chair, Department of Energy's Environmental Management Advisory Board, Chair of EPA's Science Advisory Committee, and Chair of the Strategic Options Committee of EPA's Science Advisory Committee's study of comparative risk. As a member of the National Academy of Public Administration, he participated in the congressionally mandated study of EPA. He also participated in the Defense Science Board's study of the DOD environmental program. He has been a board member of the Environmental and Energy Study Institute, the Environmental Export Council, the Center for Hazardous Materials Research; the Harvard Environmental Health Council, RENEW America, the Environmental Law Institute and a member of the Board of Advisors, Gas Research Institute.

Mr. Alm has received the following awards: Arthur S. Fleming Award, as one of ten most outstanding young men and women in the Executive Branch, 1975; the Secretary of Energy's Distinguished Service Medal, 1979; Special Achievement Award, Environmental Protection Agency, 1984; and Outstanding Senior Man, University of Denver, 1960.